



Department of Mathematics  
香港城市大學  
City University of Hong Kong

## DEPARTMENT OF MATHEMATICS

City University of Hong Kong

### On the numerical approximation of parameter dependent PDE eigenvalue problems

by

**Prof. Daniele BOFFI**

*King Abdullah University of Science and Technology, Saudi Arabia*

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**Time: 4:00pm – 5:00pm**

**Venue: Y5-303, Yeung Kin Man Academic Building**

#### ABSTRACT

In this talk I will discuss the numerical approximation of PDE eigenvalue problems depending on a finite number of deterministic parameters. The parameters can be part of the problem or can be introduced by the discretization. It turns out that eigenvalue problems are influenced by the presence of parameters in a way that doesn't compare to the corresponding source problem. We present several examples and counterexamples, showing the difficulties arising when eigenvalues and eigenfunctions need to be approximated accurately. A crucial aspect of parametric eigenvalue problems is the lack of regularity with respect to the parameter, unless a special sorting is considered, taking into account appropriately possible crossings and clustering. On the other hand, parameters arising from the discretizing scheme can be source of spurious solutions.



~ALL ARE WELCOME~

